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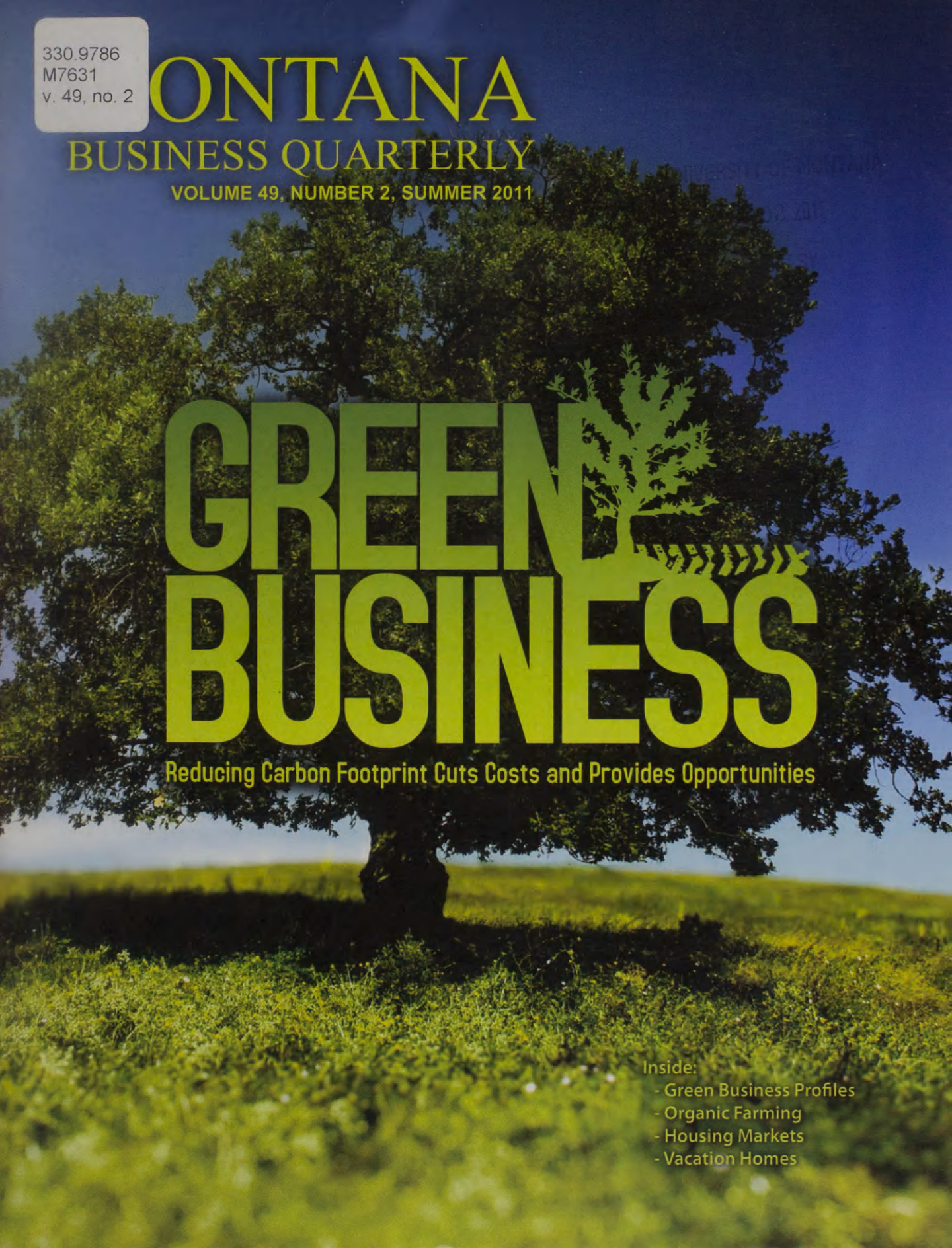

GREEN BUSINESS

Reducing Carbon Footprint Cuts Costs and Provides Opportunities

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BUREAU OF BUSINESS AND ECONOMIC RESEARCH

ABOUT THE BUREAU OF BUSINESS AND ECONOMIC RESEARCH

The Bureau of Business and Economic Research has been providing information about Montana's state and local economies for more than 50 years. Housed on the campus of The University of Montana-Missoula, the Bureau is the research and public service branch of the School of Business Administration. On an ongoing basis, the Bureau analyzes local, state, and national economies; provides annual income, employment, and population forecasts; conducts extensive research on forest products, manufacturing, health care, and Montana Kids Count; designs and conducts comprehensive survey research at its on-site call center; presents annual economic outlook seminars in cities throughout Montana; and publishes the award-winning *Montana Business Quarterly.*

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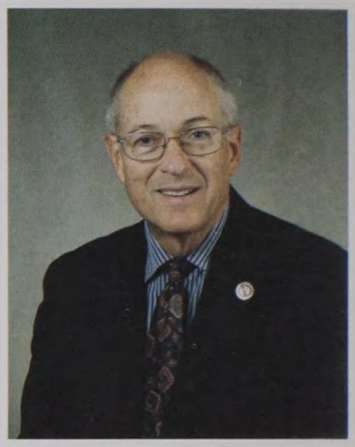
MESSAGE FROM PROVOST PERRY BROWN



For the past few years, The University of Montana has been transforming itself to a green university, joining several other universities in the U.S. as leaders in sustainability and carbon reduction. With a very active student-led sustainability committee, a full-time campus sustainability coordinator, and sustainability and carbon reduction programs, we have been exploring new avenues of sustainability and developing and evaluating how best to respond to the myriad challenges facing the University, our state, and our society. Along with businesses in Montana, we see this transformation as one to cut costs, provide new economic opportunities, be responsible to a changing society, and afford Montanans their right to a healthful and livable environment. We intend to be part of the solution to economic, social, and environmental challenges in Montana and in the world.

This issue of the *Montana Business Quarterly* helps to explain what this transformation means – not just for UM, but for the state as a whole – and demonstrates how innovative Montana businesses are responding to the challenges we face. While green energy gets a lot of play – and Montana is a place where we can produce a lot of green energy – we see businesses of many kinds developing niches within the green economy. By pushing toward sustainability, Montana businesses are generating benefits to themselves and to society.

Universities have a responsibility to explore and critically evaluate concepts; hone and refine ideas, products, and technologies that are developing; and help society implement the best ideas, products, and technologies through partnerships with governments and businesses. We are committed to meeting these responsibilities as we develop graduates to lead Montana into the future. As with many other areas of development, we are working with our partners in government and business to ensure that Montana is leading where it might and deriving benefits from a developing green economy.

Perry J. Brown

Provost and Vice President for Academic Affairs
The University of Montana

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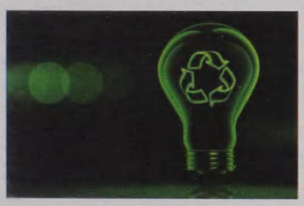

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GREEN BUSINESS

Reducing Carbon Footprint Cuts Costs and Provides Opportunities

by Lisa Swallow and Jerry Furniss

Montana businesses are discovering that engaging in sustainable business practices increases worker productivity, reduces costs, preserves the environment, offers opportunities, and provides competitive advantages.

Sustainability – or going green – is becoming a top priority for many of the state's business managers and owners who have developed green business strategies, implemented green business programs, and hired sustainability coordinators to oversee them. From small operations to high-tech startups and major corporations, Montana's business sector is using recycled and renewable materials, making investments in energy efficiency improvements, developing innovative technologies to solve environmental problems, and attempting to reduce its carbon footprint.

The impact that businesses have on the environment and society is becoming more important to customers, employees, and investors. Many companies are realizing the significance of this new dynamic and seeing firsthand the impact of not responding to various stakeholder groups. Customers and shareholders are shunning companies that do not include reports about their progress toward sustainability, or good corporate citizenship, or that fail to live up to consumer or shareholder expectations.

At the same time, businesses are experiencing shifts, some radical, in the availability and pricing of natural resources that feed their businesses. Many operations managers are sensing that continued reliance on increasingly expensive fossil fuels puts their current mode of doing business at long-term risk. The imperative to revisit the traditional business model has never been stronger.

The businesses interviewed for this article have adapted to the emerging, green business model and the rewards are proving to be substantial (see sidebars, pages 5-9).

Balancing Economic, Social, and Environmental Goals

Sustainable development, or "meeting the needs of the present without compromising the ability of future generations to meet their own needs" was the theme of *Our Common Future*, the 1987 report prepared by the World Commission on Environment and Development. Known as the Brundtland Commission (so named after its chair, Norwegian Prime Minister Gro Brundtland), the group examined escalating concerns about deteriorating global ecosystems and the potential impact on human development, biodiversity loss, degraded watersheds, and declining fisheries/forests. The resulting report was a clear directive: The international community must set a long-term agenda for action that balances economic, social, and environmental goals, or recognize that the future of the planet and its people could be significantly impaired.

The idea of social justice (consumer rights, sweatshop-free work environments, etc.) as an integral component of a business model was acknowledged only by the most progressive forerunners – Yvonne Chouinard of Patagonia and Ray Anderson of Interface Carpets, for example.

Over time, companies began to realize that three equally important and interrelated "bottom lines" need to be maximized to achieve true long-term sustainability. The "triple bottom line" (also referred to as the 3 Ps and the 3 Es) captures the idea that a sustainable business considers the needs of

all stakeholders – the people, the planet, and organizational profitability – instead of solely maximizing profits for shareholders. Here is how the various terminology relates:

Three Ps	Three Es	What is it?
People	Equity	Human capital
Planet	Environment	Natural capital
Profit	Economics	Financial capital

Analyzing business strategies, products, and processes through a triple bottom line lens is helpful for businesses pushing toward sustainability.

More Consumers Preferring Green Products

More and more customers are switching to competitors that are making moves toward a sustainable mode of operation. The 2011 ImagePower Green Brands Survey of more than 9,000 people in eight countries (conducted between April and May 2011) revealed a number of key findings related to sustainability and consumer interest, including:

- The majority of consumers across all countries surveyed say it's important to buy from environmentally friendly companies;
- Green certifications found on packaging influence buying behavior;
- Consumers in developing countries are more willing to pay a premium for green products (in the U.S. 20 percent of consumers are willing to spend more than 10 percent more on green products);
- Consumers buy more green products in the grocery industry than other sectors, and there is an indication that green products in the technology and auto industries will be on the increase;
- In the U.S., 72 percent of consumers believe it is important to buy from green companies, and 30 percent plan to spend more on green products in 2012;
- In the U.S., consumers view energy use and chemicals, toxins, and heavy metals as the most significant green issues;
- The largest challenge to businesses in the U.S. when marketing green products to consumers is the extra cost when compared to the non-green alternative; and
- Some of the top green brands among U.S. consumers include Seventh Generation, Whole Foods Market, Tom's of Maine, Burt's Bees, Trader Joe's, Walt Disney, SC Johnson, Dove, Apple, Microsoft, and Starbucks.

As millennial consumers age and have more disposable income, the value of a company having a green image will likely increase dramatically.

Growing Trend Toward Sustainability Strategies and Reporting

More businesses are finding that developing a sustainability strategy and reporting such results make good business sense as well. Sustainability reporting is now becoming mainstream with the Fortune 500 companies. According to KPMG's International Survey of Corporate Responsibility Reporting (completed triennially), in 2008, 80 percent of such companies issued sustainability reports.

"The evidence that sustainability is becoming a core consideration for successful businesses around the world grows stronger every day," according to a 2011 jointly-issued progress report by KPMG and *The Economist*. "Leading global brands such as Procter & Gamble, Anheuser-Busch InBev, UPS, or CLP Holdings are examples of market leaders that are setting the pace and standards by which their peers will soon be held accountable."

According to the Oct. 10, 2010, Economist Intelligence Unit survey of global businesses (a survey of 378 senior executives encompassing a range of industries and evenly split among North America, Asia Pacific, and Europe), 62 percent of companies represented have a strategy for corporate sustainability, up from 50 percent in 2008. Only 5 percent of companies without plans had no intentions to create such plans. The survey also revealed that larger, publicly listed firms are more likely to develop a sustainability strategy than smaller, privately held firms (79 percent versus 49 percent). It is noteworthy that among consumer goods firms, 80 percent have developed a sustainability strategy. This may indicate the impact of consumer pressure on firms that have more day-to-day product contact with consumers.

In an environmental ranking of the 500 largest publicly traded U.S. companies, *Newsweek* assigned green scores to companies derived from three component scores: the environmental impact score, the green policies score, and the reputation survey score (Table 1, page 4).

Evidence of the growing significance being placed on sustainability can be found in the corporate world by the

Table 1
Green Rankings: U.S. Companies
Top 15, 2010

Rank	Company	Industry Sector	Green Score	Environmental Impact	Green Policies	Reputation Survey
1	Dell	Technology	100.00	81.49	100.00	84.33
2	Hewlett-Packard	Technology	99.32	90.60	94.09	95.35
3	International Business Machines	Technology	99.20	98.71	89.52	98.42
4	Johnson & Johnson	Pharmaceuticals	99.02	74.95	98.86	80.34
5	Intel	Technology	97.57	95.74	88.79	92.71
6	Sprint Nextel	Technology	94.98	99.70	94.58	44.72
7	Adobe Systems	Technology	94.15	89.61	88.08	72.57
8	Applied Materials	Technology	92.67	91.98	87.33	60.06
9	Yahoo!	Technology	92.67	68.62	89.07	59.74
10	Nike	Consumer Products	92.66	67.63	77.53	97.39
11	Accenture	Industrial Goods	92.04	89.80	84.63	65.89
12	Advanced Micro Devices	Technology	91.17	99.51	81.46	55.78
13	Cisco Systems	Technology	91.07	69.41	77.56	83.87
14	Johnson Controls	Consumer Products	90.94	90.79	81.73	64.97
15	Baxter International	Health Care	90.59	91.78	81.80	61.02

Source: 2010 Green Rankings, Newsweek (www.newsweek.com).

elevation of sustainability to the "C-suite." During the Information Technology (IT) revolution, companies added the executive-level position of the Chief Information Officer (CIO) to the list of existing executive level positions – the Chief Operating Officer (COO), Chief Financial Officer (CFO), Chief Executive Officer (CEO) – and now, as sustainability comes of age, companies are creating the position of Chief Sustainability Officer (CSO). On May 19, 2011, Coca-Cola named its first CSO to head its new global Office of Sustainability.

Competitive Advantages of Going Green

For companies straddling the sustainability divide between ideology and operational changes, it is important to convey exactly how the sustainability movement will enhance commercial value. The rationale for moving toward greener pastures can be clearly outlined with a ubiquitous business case for change. The way each organization pursues some or all of these sustainability tenets, however, will look radically different. The sustainability driver varies by company – ranging from regulatory environment to visionary leaders or competitive pressures – but the benefits of going green are patently similar. Originally released by Bob Willard in 2002, "The Sustainability Advantage" compels even the most reticent executive by outlining the quantitative and qualitative benefits that accrue to a company from sustainable practices (Willard, 2002).

Following are some of the advantages of becoming a sustainable business.

Increasing Market Share and Diversifying Product Lines through Sustainability Innovation. *Harvard Business Review's* 2009 portrait of 30 large corporations dedicated to greening research and development efforts indicates that early adopters of sustainability principles are developing competencies that competitors will be hard-pressed to match (Nidumolu, Prahalad, and Rangaswami, 2009). The authors' research findings aptly summarize sustainability as a key driver of innovation.

> *"Our research shows that sustainability is a mother lode of organizational and technological innovations that yield both bottom-line and top-line returns. Becoming environment-friendly lowers costs because companies end up reducing the inputs they use. In addition, the process generates additional revenues from better products or enables companies to create new businesses. In fact, because those are the goals of corporate innovation, we find that smart companies now treat sustainability as innovation's new frontier."*

In Missoula, Rivertop Renewables' innovations in chemistry are opening markets ranging from dishwashing detergents to de-icing additives (see sidebar, page 5). Near Havre, cutting edge technology is allowing the East End Colony to grow salmon in tanks in a process that has been rated as environmentally friendly and sustainable. Large corporations like Walmart and Target exclusively purchase seafood products that are sustainably harvested, effectively changing vendors' fishing practices on a global level and offering opportunities to innovative companies. (see sidebar, page 7).

Rivertop Renewables
Innovations in Chemistry Opening New Markets

Do your drinking glasses look cloudy and dirty even though they have just gone through the dishwasher? Chances are they are not as sparkly as they used to be because the nation's dishwasher detergent makers are reformulating their products to reduce what has been the crucial ingredient, phosphates, to just a trace.

Manufacturers are facing increasing scrutiny over phosphate use, which can linger in water supplies and have negative impacts on ecosystems, killing fish and plants. Companies like Procter & Gamble are desperate to find a solution, and the chief financial officer of Missoula's Rivertop Renewables thinks he has an answer.

Rivertop President and CFO Jere Kolstad, who grew up on a farm in Glasgow, Montana, says that his company's technology allows the manufacturing of environmentally neutral products made from simple plant sugars that will solve many problems.

Rivertop Renewables grew from research at The University of Montana and was founded by Don Kiely, a former UM chemistry professor who developed the technology over a 40-year period.

Industrial chemicals like phosphates and petrochemicals – used in products like detergents, road de-icers to melt snow and ice, fire retardants, and cosmetics – pollute the environment and lack biodegradability.

"There are big black problems like these all over the place where the reward for solving them is huge," Kolstad says. "Green businesses offer huge opportunities."

Rivertop recently received a $3.5 million grant to build labs, offices, and "semi-works" in its Montana Technology Enterprise Center, or MonTEC, location. Out of that $3.5 million, $1.75 million came from the U.S. Commerce Department's Economic Development Administration, and the other $1.75 million came from a matching grant from UM. Rivertop will add an additional $2.5 million in private capital to equip its new labs and semi-works area at the MonTEC facility.

Every week, a major corporation – like Nike, Sherwin Williams, Dow Chemical – contacts Rivertop to talk about the green solutions the Missoula company offers.

Kolstad says that entrepreneurs need to have a vision of 10 to 50 years down the road to be successful. He expects Rivertop's sales to reach $100 million by 2015.

Other examples of using sustainability principles to find market opportunities and enhance competitive advantage include:

- Businesses with existing products are rolling out complementary green product lines. Check the local grocery store to see premium shelf space increasingly allocated to natural body products and local and organic food/wine/brews.
- Energy audit and monitoring companies are experiencing significant growth because of increasing consumer demand for tightly-managed energy usage in their homes and businesses.
- Organizations designed to maximize a business operation's value, or supply chain, are popping up everywhere. For example, under the Western Sustainability Exchange's "Steer to Steak Program," ranchers following certain sustainability practices are assisted in converting their cattle into a market-ready product (beef) destined for premium-based markets for sustainably raised cattle.
- Competitive advantages that accrue from designing products for the green era are clearly demonstrated by simply looking around Montana cities. The influence of sustainability-minded architects and green builders is evidenced by the fact that Montana has 28 certified Leadership in Energy and Environmental Design (LEED) buildings and nine residential homes.

Capitalizing on Green Branding and Imaging. The emerging demographic of green consumers has golden purchasing patterns, worthy of concentrated attention by marketing campaign designers (Deloitte Touche, 2010). These "conscious consumers" spend an above average amount at point of sale, are intensely loyal to their brands, are highly educated, and are not as susceptible to price point changes as other sectors. The number of vibrant companies designing for consumers' desires for the next

Missoula Federal Credit Union
Work Environment Positive and Productive in Green Building

Some employees like the natural light and comfortable work spaces. Some like the open, airy space and the community artwork on the walls. Most like the fact that the materials used in their workplace are recycled, reusable, and renewable – and green.

When employees are in a building eight to ten hours a day, lighting, heating, cooling, and a comfortable work environment are important, according to Joni Walker, senior vice president of the Missoula Federal Credit Union.

Employee comfort was something the designers, architects, and credit union managers spent a lot of time thinking about before beginning the green building process on the Russell Street site. The Russell Street branch, which opened its doors in 2009, earned the first Leadership in Energy and Environmental Design (LEED) platinum certification in the state.

LEED is an internationally recognized green building certification system, which rates buildings on energy savings, water efficiency, indoor environmental quality, and commitment to using renewable and local materials. Platinum is the highest rating.

Employees are productive and happy in their green environment, Walker says. In fact, there is a waiting list of employees from other branches who want to transfer to the Russell Street branch.

Managers are pleased, too. Because of the innovative ideas implemented in the building – such as solar panels and other energy efficiency measures – managers expect to reduce long-term operational expenses, Walker says.

The senior vice president enjoys telling the stories about the building. For example, instead of using cement, contractors used fly ash (a waste product of coal-fired power plants) and recycled glass aggregate "concrete." For framing and trim, they used sunken logs exposed during the removal of the Bonner and Milltown dams. Native and drought-tolerant plant species that will not require permanent irrigation systems were planted around the building. Bicycle storage and showering facilities were provided to encourage non-vehicle transportation to work.

"We want to be doing things that aren't going to be harmful and that will be beneficial to our communities," Walker says. "We just added sustainability to our mission statement, and that is a huge step because it reinforces how important sustainable business practices are for us."

generation of energy- and resource-efficient products, is growing accordingly. Membership-driven organizations like Billings' Green Directory Montana and Missoula's Sustainable Business Council are linking customers with companies and contributing to another critical sustainability concept: buying locally.

Capitalizing on Eco-Efficiences. Arguably the easiest path for enterprises just starting the sustainability process is the notion of being more environmentally efficient. Regardless of product line, if a company can reduce its use of water, energy, raw materials and/or generate less waste, operational expenses will decrease. Using recycled materials, reducing reliance on virgin nonrenewable resources, and installing simple energy-saving devices and lighting retrofits can have very short payback periods. Some of these are done with little initial cost or time investment and others are subsidized by significant tax credits, making it easier to invest in higher cost projects at the front end. Even more interesting, these projects show strong triple bottom line results as they decrease waste, reduce carbon emissions, and diminish water usage. Oftentimes, newly employed specialists in energy retrofitting or alternative energy installation are employed, thereby maximizing the "people" portion of the triple bottom line as well.

Reduced Risk and Easier Financing. Enhanced accessibility to discounted costs of borrowing money can be advantageous for businesses with sustainability characteristics. Increasingly, risk models indicate that businesses that have sustainability practices in place such as climate change mitigation plans, alternate raw material options, and access to renewable energy and local markets are less risky and therefore should be valued accordingly. These businesses are often more appealing to new investors and may enjoy increasing access to capital. In fact, a growing number of venture capitalists and traditional banks focus only on companies that can demonstrate triple bottom line performance.

East End Colony Salmon Farm

Hutterites Use Cutting Edge Technology to Raise Salmon Sustainably

Far from the ocean, at the East End Hutterite Colony just north of Havre, 50,000 salmon are growing in one of Montana's first commercial fish farms.

Mark Waldner, the fish farm manager at the East End Colony, says the colony received the salmon eggs and the equipment to raise the fish a few months ago from AquaSeed Corp. in Seattle. The colony's neighbors, the Miller Colony near Bynum, began their salmon operation in December 2010.

While it may seem odd to raise salmon far away from salt water in a land-locked state, it probably will be happening more frequently. Within the past year, the Monterey Bay Aquarium Seafood Watch approved a land-based approach to raising salmon using tanks and filters and rated it as one of the most environmentally friendly and sustainable methods.

High-end restaurants and large corporations such as Walmart and Target have pledged to buy only sustainable fish after the controversy over farm-raised fish that are grown in large open-ocean aquaculture pens. The practice has been criticized because the nonnative species can escape into the ocean, spreading disease to other fish and polluting the water with sea lice. Another major criticism about farm-raised salmon is that it can take up to five pounds of wild fish as a food source to produce one pound of salmon – a rate that does not make sense when considering sustainability.

At the East End Colony, the salmon grow in steel tanks, which are 30 feet in diameter. Innovative technology, which AquaSeed Corp. developed, filters the waste from the water and re-creates a stream. The water is continuously circulating and going through a number of cleaning processes. The Washington-based company advocates a special fish food, which uses a minimal amount of fish, along with beans, grains, and other protein.

Raising salmon seems like a good idea for the colonies to supplement their income that comes from crops and livestock, Waldner says. It takes the salmon a year to get to 6 pounds, at which point the colony will sell them back to AquaSeed Corp. to market to the food service industry.

"The U.S. is importing millions of pounds of seafood per year," Waldner says. "Why not do it locally and sustainably without depleting the oceans?"

Kettlehouse Brewing Co.
Local Brewery Gives Back to Community

In the summers, their customers come in off the river – suntanned, wet, happy, and thirsty. In the winters, they come off local ski hills – wind-burned, cold, happy, and thirsty. Many of their customers are outdoorsy, environmentally minded, and always in search of a good, cold, locally brewed beer.

"We make products that jibe with our clienteles' belief systems," says Al Pils, who specializes in sales at Missoula's Kettlehouse Brewing Co. Some of the brews are outdoor-themed: "Eddy Out" is a coppery pale ale and has a kayaking or boating reference (pull off the river into the eddy). "Cold Smoke" is a hearty ale that has a skiing reference (cold referring to snow and smoke referring to powder) and is "perfect after a day of rippin' lines on area or your favorite backcountry getaway." "Double Haul" is brewed with lots of hops and solid body and is named after a fly-casting technique.

Reusable and recyclable products are of utmost importance to the Kettlehouse's customers, who often ride their bikes to the brewery to conserve on driving. With two locations in Missoula, customers can have a pint or two in the taproom and then fill up their reusable growlers to take home. The Kettlehouse also sells its beers in cans, which are, unlike glass, "river-safe, camping-safe, not breakable, and easily recyclable," Pils says. Glass recycling is limited in Missoula.

Because of the Kettlehouse's dedication to using Montana-grown malted barley, the brewery received a Growth Through Agriculture Program grant from the Montana Department of Agriculture to further develop its business.

In addition to using locally grown products, the Kettlehouse believes in giving back to the community. Every Wednesday night, the brewery hosts a different community group, donating 50 cents from every pint sold back to the nonprofit organization that is holding the social.

Employee turnover at the Kettlehouse is low, Pils says. Employees like working for a company that has sustainable values and is engaged in green business practices, and they want to stay around. Even though it is expensive for small businesses, the Kettlehouse offers employees health and dental insurance, which may be another reason employees stay.

Finding and cultivating top-notch talent. Employment costs (particularly recruiting and retention) decrease in sustainably-minded companies. Research shows that green facilities such as the Missoula Federal Credit Union contribute to enhanced productivity, and highly-evolved sustainable organizations like the Kettlehouse boast almost no turnover, greatly reducing human resource costs. Vibrant employees migrate to areas that are known for their green ethos and contribute to robust growth in the number and diversity of green businesses. The Montana university system continues to build curriculums devoted to energy technology, climate change studies, green building, and sustainable business, which positions Montana to attract companies needing employees with these skill sets.

St. Patrick Hospital
Sustainability Practices Save Money and Improve Environment

St. Patrick Hospital has won gold for being green. The Missoula hospital recently received the national Healthy Hospital Gold Award for saving $352,293 and diverting more than two tons of single-use devices from landfills in 2010.

Because of excessive energy needs, toxin use, and waste production, the health care industry makes significant negative impacts on the environment. Beth Schenk, coordinator of the Women's Health program and the sustainability coordinator for St. Pat's, is proud of the progress the hospital has made in greening up its operation.

St. Pat's won the award for keeping medical waste – like used surgical gloves, bandages, needles, and surgical instruments – from the landfill by recycling and reusing items. While most medical waste must be thrown out, the Environmental Protection Agency has a list of medical equipment that can be recycled. St. Pat's won the award from Ascent Healthcare Solutions, the leader in reprocessing and remanufacturing medical devices in the U.S. By recycling and reusing, the hospital also saved more than $300,000.

Last year, St. Pat's was able to keep 31 percent – or 281 tons – of all waste out of the landfill, Schenk says, adding that her goal is to get it up to 50 percent.

In addition to reducing waste, conserving energy is a top priority at the hospital, and she estimates that St. Pat's will save nearly a quarter of a million dollars per year because of investments in energy-efficient systems.

Sustainable practices are important to St. Pat's employees, who do what they can to reduce the hospital's ecological footprint by walking, bicycling, and carpooling to work, as well as recycling and conserving energy.

Employees are passionate and management is supportive of making the hospital a greener and healthier place to work, Schenk says. As an experimental project, St. Pat's planted a small patch of sedum on the rooftop. "Living roofs" are sometimes installed to provide climate control effects and encourage urban biodiversity, but the experimental patch is too small to have that effect.

"Right now, it just for fun and brings a little bit of nature to the staff and public," Schenk says.

Like many large corporations throughout the nation, St. Pat's has a greening strategy and completes a sustainability report. The report lists St. Pat's core value of stewardship as: "We strive to care wisely for our people, our resources, and our earth."

Sustainability Planning for the Future

Corporate sustainability is a proactive and efficient approach to decreasing organizational exposure to the changing landscape and is becoming increasingly critical to companies interested in strategic positioning for the future.

Focusing on simply complying with regulations seemed adequate in the last century; however, a majority of the Fortune 500 companies and progressive Montana entities like The University of Montana and the City of Bozeman are actively looking toward the future through sustainability planning. Both have conducted greenhouse gas inventories and have prepared Climate Action Plans, which serve to reduce pricing risk for future bonding and budgetary purposes, prioritize capital projects, and project operational needs/costs more efficiently.

Although a sustainable business strategy may be considered novel in some venues, many of the strategies employed and benefits derived from this approach are just common sense. Sustainable development is about acknowledging limits and envisioning the future accordingly.❑

Lisa Swallow is a professor at The University of Montana College of Technology. Jerry Furniss is a professor at The University of Montana School of Business Administration.

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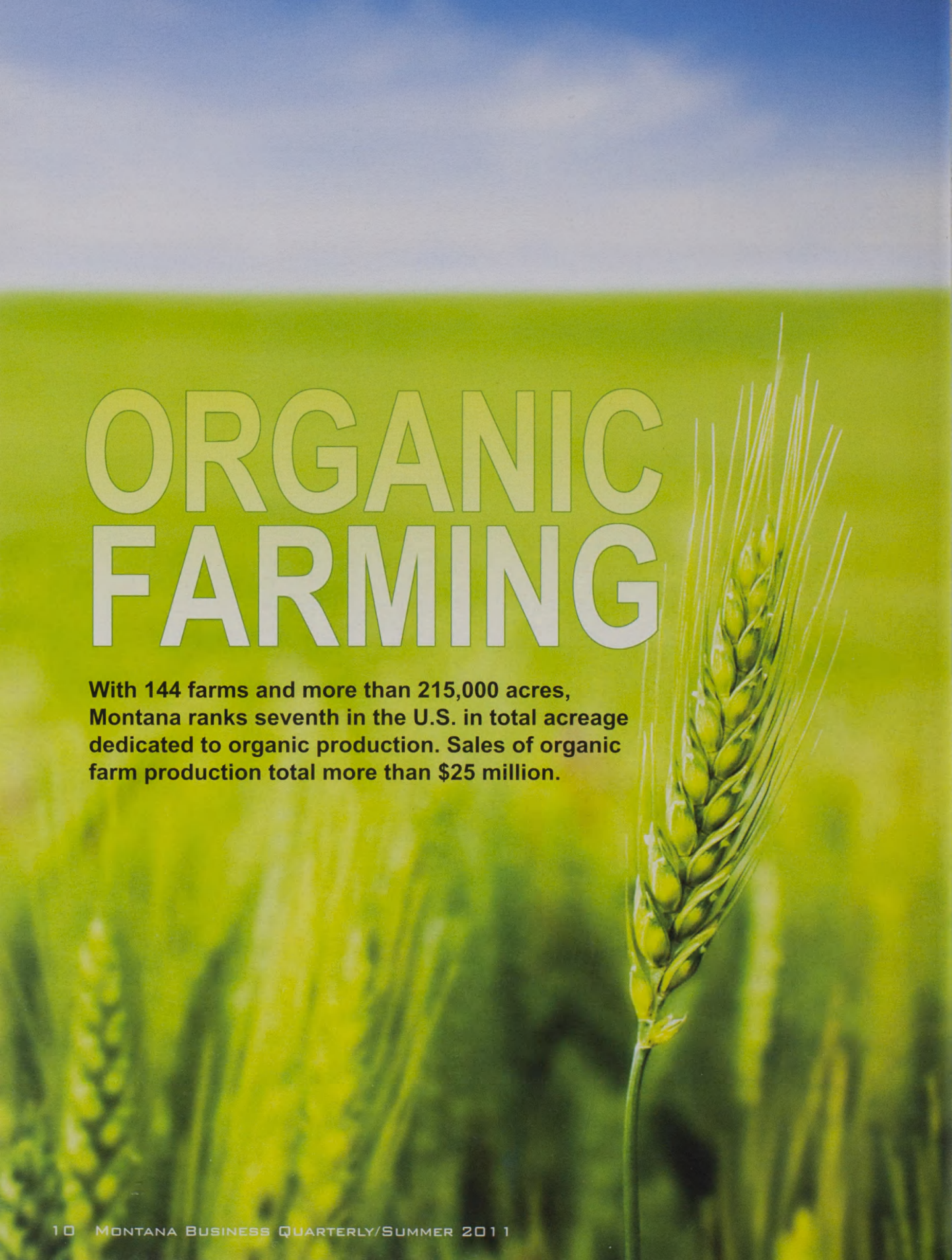


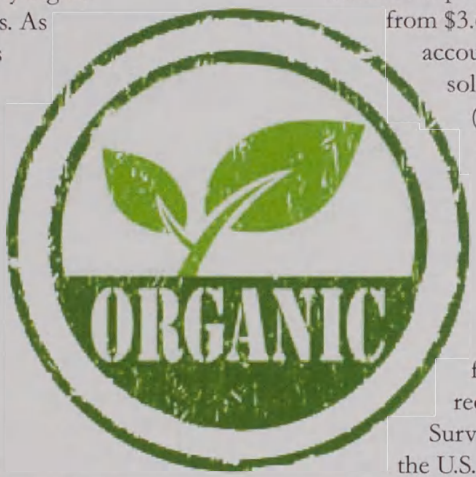
ORGANIC FARMING

With 144 farms and more than 215,000 acres, Montana ranks seventh in the U.S. in total acreage dedicated to organic production. Sales of organic farm production total more than $25 million.

More Montana Farmers are Venturing Toward the Organic Marketplace

by George Haynes

Organic farming is on the rise in Montana as farmers respond to increased demand and an increasing willingness to pay higher prices for organic products. As the economy rebounds, the future looks strong for high-quality, locally grown, and organic farm products in Montana.



Montana ranks seventh out of 50 states in total acreage dedicated to organic production. The 215,000 acres, less than 1 percent of farm land, in Montana is divided between crop use (60 percent) and pasture use (40 percent), as shown in Figure 1. Total sales of organic farm production totaled more than $25 million in 2008, with nearly 95 percent ($24 million) generated by crops and 5 percent ($1.4 million) generated by livestock operations (NAAS Organic Production Survey, 2008). These sales represent less than 1 percent of total receipts from agricultural marketing in Montana. However, organic production has grown rapidly from just 80 farms and 121,175 acres in 2000 to 144 farms and more than 215,000 acres in 2008 (Greene & Slattery, 2010). The growth in crop and pasture/forage land devoted to organic agriculture from 2000 to 2008 has been impressive, with crop land increasing by 1.5 times and pasture land increasing by 2.5 times.

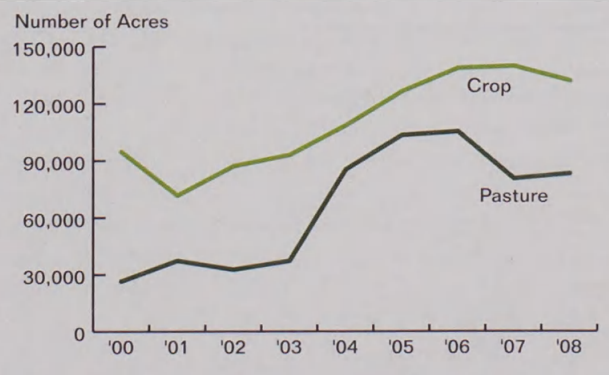
Organic farming is a form of production that avoids or largely excludes the use of synthetically compounded fertilizers, pesticides, growth regulators, and livestock feed additives. Farmers who produce organic products emphasize the use of renewable resources and the conservation of soil and water to enhance environmental quality for future generations.

Production

Montana organic production follows a growth profile similar to U.S. overall organic production. Even though certified organic crop and livestock acreage has grown rapidly over the past decade, the adoption of organic agricultural production practices in the United States has lagged behind other countries (Green, Slattery & McBride, 2010). U.S. organic crop acreage comprises less than 1 percent of total crop acreage, where organic crop acreage comprises a significantly higher percentage of total crop acreage in Switzerland (11 percent), Italy (9 percent), and the United Kingdom (4 percent). U.S. organic food sales are expected to reach $25 billion in 2010, up from $3.6 billion in 1997. Organic products account for more than 3.5 percent of food sold for at-home consumption in 2009 (Organic Trade Association, 2010). Along with growing production, organic products have shifted from a lifestyle choice for a relatively small number of consumers to being products consumed occasionally by two-thirds of Americans (Hartman Group, 2004).

There is no "typical" U.S. organic farmer. However, results from the recently released Organic Production Survey (2008) suggest that organic farms in the U.S. tend to be smaller and have a higher percentage of female and younger operators than conventional farms. Farming is the primary occupation for 60 percent of organic farm operators, although nearly 90 percent of all organic farms sales are made by about 25 percent of the organic farm operations. About 30 percent of organic and non organic producers make 75 percent or more of their household income from farming or ranching.

Figure 1
Number of Crop and Pasture Acres Dedicated to Organic Production, Montana, 2000-2008



Source: Economic Research Service, U.S. Department of Agriculture.

Table 1
Gross Sales from Organic Crops, Montana, 2008

Crop	Gross Sales	Share
Other spring wheat	7,842,661	32.7%
Winter wheat	7,027,390	29.3%
Durum	5,826,952	24.3%
Hay	1,233,562	5.1%
Barley	559,562	2.3%
Peas	545,023	2.3%
Vegetables, potatoes, melons	182,732	0.8%
Fruit and tree nuts	141,147	0.6%
Flax	92,270	0.4%
Oats	65,516	0.3%
Floriculture and bedding crops	57,220	0.2%
Berries	50,807	0.2%
Other crops	380,158	1.6%
Total Gross Sales	24,005,000	100.0%

Source: National Agricultural Statistics Service, Organic Production Survey, 2008.

Table 2
Production Practices of Organic Farmers and Ranchers in Montana, 2008

Production Practices	Number of Farms	Percent of Farms
Maintained buffer strips	119	68.8%
Used green or animal manures	109	63.0%
Used water management practices	72	41.6%
Chose pest-resistant varieties	66	38.2%
Used no-till or minimum tillage	59	34.1%
Produced or used organic mulch or compost	57	32.9%
Selected planting locations to avoid pests	52	30.1%
Planned plantings to avoid cross-contamination	42	24.3%
Maintained beneficial insect/vertebrate habitat	41	23.7%
Practiced biological pest management	40	23.1%
Practiced rotational grazing	28	16.2%
Released beneficial organisms	27	15.6%
Practiced free-range livestock production	24	13.9%

Source: National Agricultural Statistics Service, Organic Production Survey, 2008.

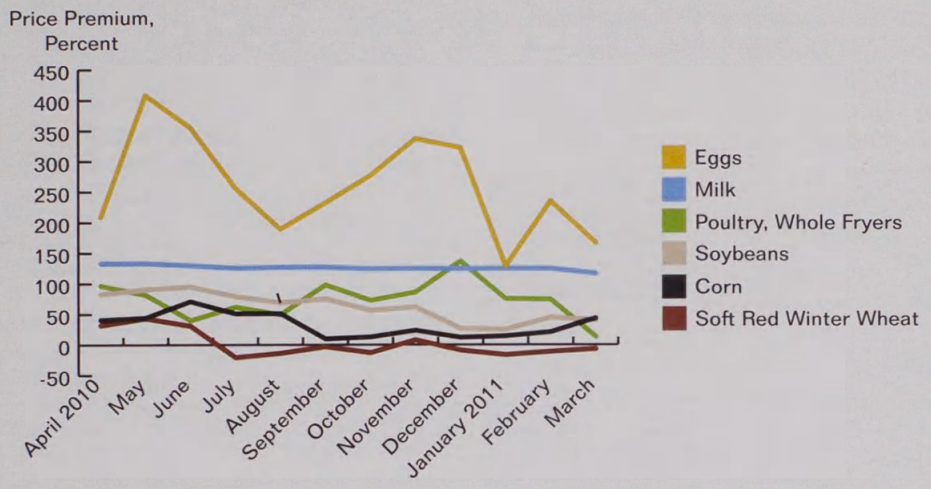
Montana organic crop agriculture comprises about 95 percent of total gross sales for all organic (crop and livestock) agriculture. A list of certified Montana organic producers and handlers is available on the Montana Department of Agriculture's website, (http://services.agr.mt.gov/Agr_Organic_Certified_List/faces/OrganicCertifiedList.jsp). Organic crop production is dominated by small grains (durum, winter wheat, spring wheat, and barley – comprising 89 percent) and hay (comprising 5 percent) with these crops totaling $22.5 million in total sales (94 percent of total organic crop sales) in 2008, as shown in Table 1. Organic vegetables, potatoes, and melons ($183,000 in sales); fruit and nut trees ($141,100 in sales); berries ($50,800 in sales); and floriculture and bedding plants ($57,200 in sales) comprise the remaining 9 percent. The production of conventional crops looks somewhat similar in Montana, with wheat and hay production comprising about 70 percent of total crop sales in 2008.

The Organic Production Survey (2008) identified 71 farms producing organic livestock. The survey reported gross sales information only for beef cows and other organic cattle because there were too few producers in the other livestock categories. The 20 farms producing beef cattle and other organic cattle had sales of $218,000 and $909,500, respectively. Other producers had milk cows (four farms), hogs (five farms), sheep (seven farms), goats (three farms), and chickens (11 farms). The beef cows and other organic cattle farms comprised 82 percent of the gross sales of organic livestock production.

Organic certification is granted based on the implementation of production practices (Table 2). The most common production practices implemented by the crop producers were maintaining buffer strips between organic and non organic crops (68 percent), using green or animal manures (63 percent), using water management practices (42 percent), choosing pest-resistant crop varieties (38 percent), using no-till or minimum tillage (34 percent), and producing or using organic mulch or compost (32 percent). A majority of the livestock producers practiced rotational grazing or free-range livestock production.

Some additional production risk is borne by these producers because they face additional regulatory burdens, deal with less well-established market prices, and incur other production problems because of less chemical, fertilizer, and antibiotics use. When asked about their most important constraints, 27 percent identified regulatory problems, and 18 percent identified production problems. Given the additional risk, it's interesting to note that less than one-third of the farms had their organic crops covered by federal crop insurance or were enrolled in the national organic certification cost-share program.

Figure 2
Price Premium* Received for Major Organic Commodities, April 2010 to March 2011



*Percentage difference between organic and conventional prices.
Source: Agricultural Market Service, 2011.

Marketing

The organic market has been cast as a premium market, where farmers sell their produce directly to consumers or small health food stores. In fact, organic producers received a substantial price premium on some products over the past year, April 2010 to March 2011 (Figure 2). Organic corn and soybean average prices have been 30 percent and 58 percent higher than conventional corn and soybean average prices, respectively, while organic wheat average prices have been slightly below conventional wheat average prices. Organic milk prices have maintained a substantial price premium of 100 percent over conventional milk prices (AMS, 2011). The average price for organic eggs was over three-fold higher than the average price for conventional eggs, and the average price for organic whole frying chickens was 72 percent higher than the average price for conventional whole fryers. The volumes and supplies of organic beef and pork haven't been large enough for the USDA to track prices for them. As more organic producers enter the market, these price premiums will dissipate; however, near-term price projections suggest that these price premiums will continue for organic producers. On the production side, these price premiums help to compensate for higher production costs and lower yields.

In 2008, more than 80 percent of organic sales were made through wholesale markets, 9 percent directly to consumers, 5 percent directly to retailers, and 5 percent through other marketing channels in Montana. In comparison, only 0.4 percent of conventional agricultural sales were directly to the consumer in the U.S. About 30 percent of gross sales were made within 100 miles of the producer's farm or ranch (NASS Organic Production Survey, 2008).

Outlook for Organic Farming

Even though the rate of growth of organic production has slowed, the future is optimistic for these producers. In the NASS survey, nearly 80 percent of Montana's organic producers indicated they were planning to increase or maintain organic production. This optimism has been supported by provisions in the 2008 Farm Bill, including cost-share arrangements for organic certification and substantial increases in funding for the National Organic Program. The aim of public investment in organic agriculture has been to encourage producers to adopt organic practices and provide consumers with certified products.

The demand for organic products has been dampened by the decline in income during the Great Recession and more competition from the new labels, such as the "locally grown" label. Interestingly, new research suggests that consumers prefer locally grown products, whether or not they are organically grown, to non local organic products (Greene, Slattery & McBride, 2010).

Summary

Organic agriculture is gaining a stronger foothold in Montana as agricultural producers respond to the increasing demand and higher prices paid for some organic products. While non organic gross sales are evenly divided between crops and livestock, organic agriculture is dominated by crops, especially small grains in Montana. Produce and dairy products comprise a majority of organic food sales in the U.S.; however, Montana producers have very small market shares in either of these markets. While some indicators suggest more perishable products are being grown to meet the "locally grown" market demand, distance to market, climate, and other factors will likely steer growth in the organic sector toward small grains and other non perishable crops. As our economy emerges from the recent recession and household income begins to improve, the demand for high-quality, locally grown, and organic products will likely continue to grow.❑

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Real Estate Market Still in a Slump

by Patrick M. Barkey

Three years into its real estate slump, Montana's housing markets do not yet show definitive signs of improvement. The symptoms of the real estate malaise differ in their severity across the state, but they are depressingly familiar to all: soft or declining prices for new and existing homes, increased time on market for homes offered for sale, and continued low levels of new home construction activity. Even as the rest of the state economy swings to growth, the data clearly portray 2010 as another year of adjustment and correction in Montana's housing markets.

If it is any consolation, the weakness in real estate and construction markets is no more pronounced in Montana than the nation as a whole. And even though the impacts are keenly felt locally, the causes of our state's anemic housing markets are largely national as well. Those reasons include an unprecedented increase in housing prices, fueled by easy access to credit and a failure of global financial markets to recognize the risks in the increasingly complex and opaque tools used to finance the boom.

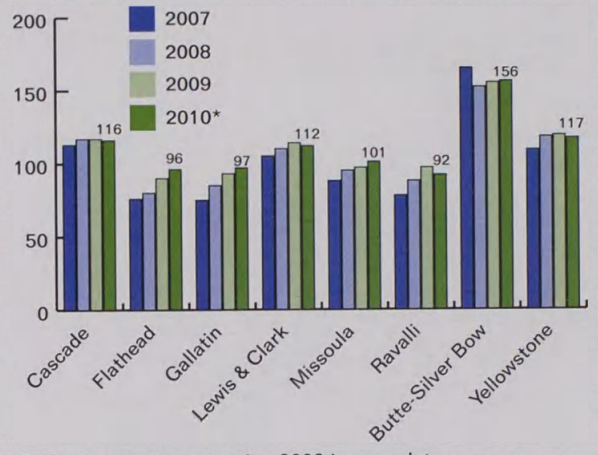
Housing Affordability

The significant housing price declines that followed have had profound impacts on financial institutions, household net worth, and new home construction. But they have had a silver lining in housing affordability. The trend toward greater affordability that began in 2008 has continued, particularly in Montana's less affordable markets.

In seven of Montana's eight largest housing market areas, housing affordability as measured by the Housing Affordability Index (HAI) increased in 2009, the most recent year for which complete data are available. The gains in affordability appear to have continued into 2010 for three higher-cost markets: Flathead, Gallatin, and Missoula. The 2010 estimates for the HAI were computed with 2009 values of median income and thus must be considered preliminary until 2010 income data become available.

The HAI incorporates home sales price data collected from Multiple Listing Service (MLS) data provided by Realtors as well as county-level median household income data from the U.S. Census Bureau's American Community Survey. Specifically, the index represents the percentage of the monthly payment on a median-priced home that the median earning household can make without exceeding

Figure 1
Housing Affordability Index in Montana's Major Real Estate Markets, 2007-2010



* Preliminary estimates using 2009 income data.
Source: Bureau of Business and Economic Research, The University of Montana.

30 percent of its income. The latter is the affordability standard used by the U.S. Department of Housing and Urban Development (HUD).

Housing price declines have helped produce a meaningful improvement in affordability in most Montana markets. The Missoula market is now considered to be affordable by the HUD standard of affordability incorporated into the Housing Affordability Index (HAI) created for this report. Flathead and Gallatin markets saw significant gains in affordability, but they remain just shy of the affordability threshold. Areas of the state with little change in affordability, such as Cascade, Butte-Silver Bow, and Yellowstone counties, already exceed the HUD affordability standard.

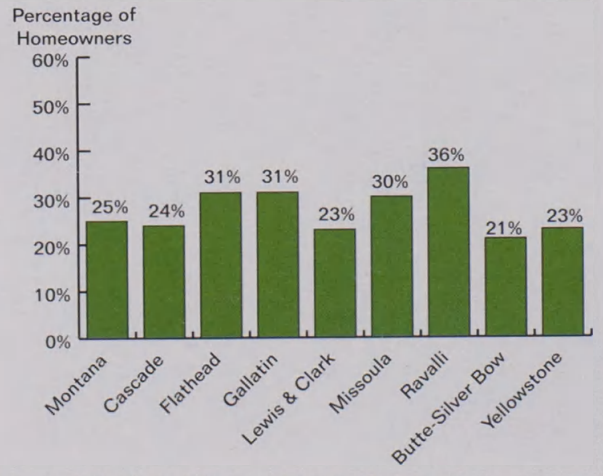
Another take on housing affordability comes from the American Community Survey (ACS), conducted by the U.S. Census Bureau. The most recent data available are for year 2009. The percentage of homeowners in the survey who said that they paid more than 30 percent of their incomes to pay for their homes is high in the communities that also have low HAI values.

The ACS also provides a measure of affordability of housing for renters. As shown in Figure 3, not only is the percentage of renters paying more than 30 percent of their incomes toward housing higher than the comparable figures for homeowners, but the relative rankings among Montana communities are distinctly different. Missoula County stands out as the major Montana market with the highest fraction of housing-stressed renters, whereas Ravalli County – which had the highest proportion of housing-stressed homeowners – is among the lowest. Of course, the economic and demographic characteristics of homeowners and renters are distinctly different, so these findings are not inconsistent.

Real Estate Markets in 2010

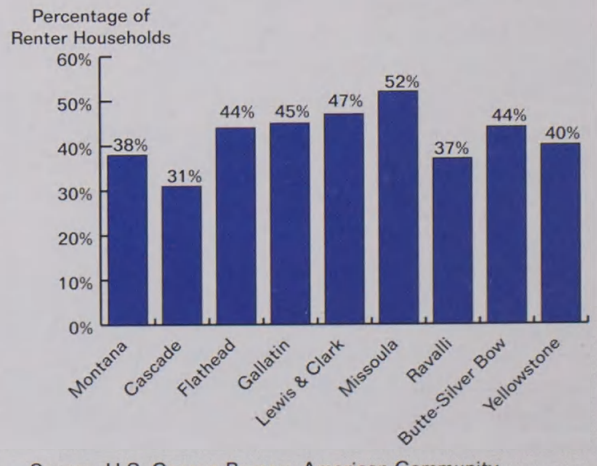
Unfortunately, affordability is about the only piece of good news in a year when Montana's housing markets continued to suffer a third year of decline. Residential real estate markets across Montana were generally characterized by low prices and sales volumes in 2010, with only mild upticks in a few areas balanced by sizable declines in others. Even though the national economic recession officially ended in mid-2009, it is clear that Montana's housing malaise continued virtually unabated through last year.

Figure 2
Percentage of Homeowners Paying More Than 30 Percent of Income Toward Housing, 2009



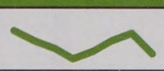
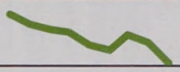
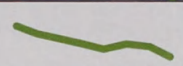
Source: U.S. Census Bureau, American Community Survey, 2007-2009.

Figure 3
Percentage of Renters Paying More Than 30 Percent of Income Toward Housing, 2009



Source: U.S. Census Bureau, American Community Survey, 2007-2009.

Table 1
Performance of FHFA Housing Price Index, 2000 Q1 - 2011 Q1

	Housing Price Peak		Housing Price Growth		
	Value		Percent Growth		Trend Over Last 8 Quarters*
Market	Date	(1995=100)	2000-Peak	Since Peak	
Billings	2008 Q4	204.4	73.4	-3.1	
Great Falls	2009 Q1	191.8	64.0	-1.3	
Missoula	2008 Q2	231.6	86.6	-9.1	
Non metro Montana	2008 Q1	229.5	89.9	-11.4	
Montana	2008 Q1	221.0	83.1	-8.2	
Mountain States	2007 Q2	220.6	72.2	-25.2	
United States	2007 Q1	209.4	66.5	-14.8	

*Scale of vertical axis differs between graphs.
Source: Federal Housing Finance Agency.

Housing Prices

The Federal Housing Finance Agency's (FHFA) Housing Price Index, available for Montana's three Metropolitan Statistical Areas as well as the state as a whole, has continued to register declines through the first quarter of 2011. The FHFA's index attempts to correct for the mix of housing sold by focusing on repeat sales of the same property. In two of the three Montana MSAs, Billings and Great Falls, the declines in prices have been fairly modest. However, Missoula's 9.1 percent decline since the 2008 peak, as well as the 11.4 percent decline in non metro Montana housing price index values, has been significant.

On average, the price declines in Montana started later, and have been less severe, than those experienced in the Mountain States region as well as the nation as a whole, as shown in Table 1. The worrying aspect of trends in housing prices is that they have not shown any signs of stabilizing. Until housing prices find a new resting point, pressure will continue on lenders using real estate as collateral.

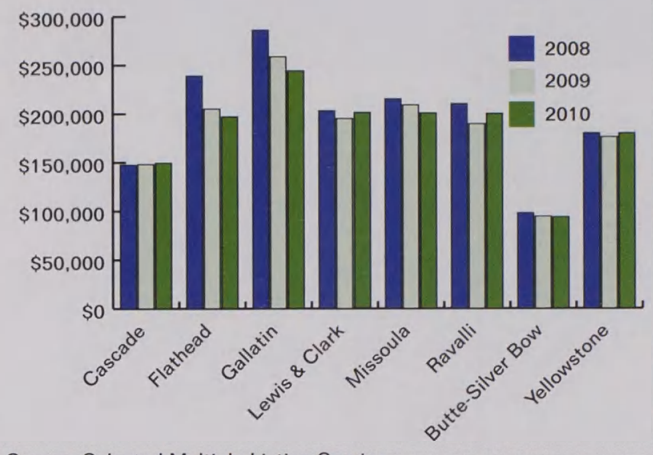
The housing price index data are consistent with the annual data derived from the MLS price information collected from area Realtors, shown in Figure 4. These data represent median prices for homes sold, which reflect both changes in market values and changes in the mix of homes sold. The price declines in 2010 were most pronounced in Gallatin, Flathead, and Missoula counties, with stable or modest improvement in prices in Cascade and Yellowstone counties. The median price increased in Ravalli County in 2010 but remained slightly lower than the median price of 2008.

Sales Volume

The performance of major markets in terms of the volume of residential sales was mixed. As shown in Figure 5, declines in the number of sales occurred in four markets – Cascade, Missoula, Butte-Silver Bow, and Yellowstone. These markets saw an average 11.4 percent decline in the number of homes sold, using MLS data. Two markets, Flathead and Gallatin counties, enjoyed a significant increase in sales volume in 2010, averaging 34.7 percent more sales than in 2009. Lewis and Clark and Ravalli counties saw no change to their sales volumes in 2010.

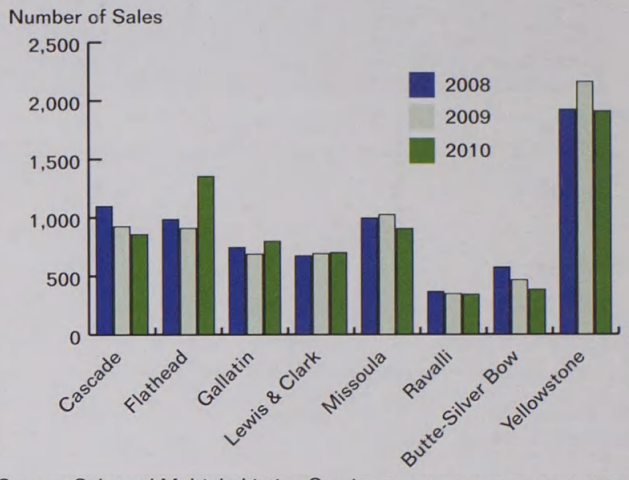
The combined total of 7,234 units sold in 2010 across all eight markets was almost identical to the total sales of the previous year. In fact, total sales for these markets have held steady at an average of about 7,250 units for the last three years, with declines in some markets in individual years offset by gains in others. The big decline in sales occurred after 2007, when all eight markets totaled 9,461 units sold.

Figure 4
Median Price of Residential Sales, 2008-2010



Source: Selected Multiple Listing Services.

Figure 5
Number of Residential Sales, 2008-2010

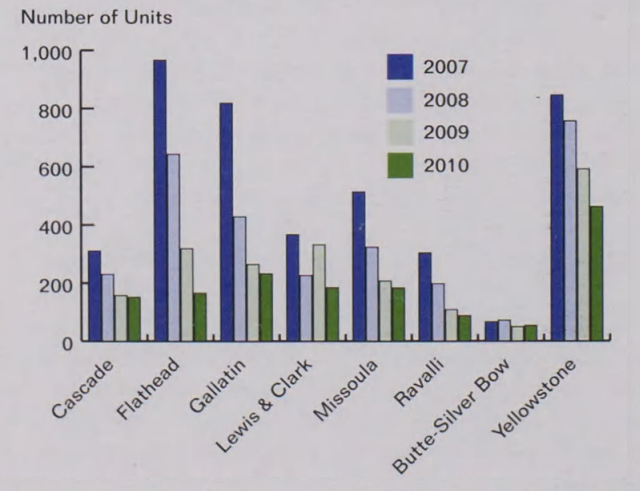


Source: Selected Multiple Listing Services.

New Home Construction

The continued distress of Montana's residential construction industry is most apparent in viewing the continued downward trend in new housing starts. Since many unincorporated areas within Montana counties do not require building permits, we combined permit data with data on new residential electric service permits (in non-permit-issuing jurisdictions) to estimate housing starts for the eight major markets in Montana. The data presented in Figure 6 show that the steep declines in new building that began in 2008 have continued, largely unabated, in 2010.

Figure 6
Single Family Housing Starts, 2007-2010



Sources: U.S. Census Bureau, Construction Statistics and Montana Department of Labor and Industry.

Declines in new home construction continued even in markets like Yellowstone and Cascade counties that have seen smaller declines in prices. Housing starts in these two communities were down by 45.5 and 51.3 percent in 2010 from their 2007 levels, respectively. But the construction declines have been the most severe in the counties that saw the highest construction levels prior to the housing bust – Flathead and Gallatin counties. Gallatin's decline decelerated slightly in 2010, with 12.1 percent fewer housing starts than the previous year. Flathead County suffered the steepest home-building drop of any major market in the state, with just 165 units built in 2010, a 48.1 percent drop from 2009 and an 82.9 percent decline from construction levels in 2007.

Summary

Montana's real estate markets overall showed few signs of improvement in 2010. Sales volume in a few communities, most notably Flathead County, did show some gains over 2009, although other communities saw offsetting declines. Prices continued their downward trajectory throughout the year for all of the state's Metropolitan Statistical Areas. And new home construction continued to fall in 2010 from what were already very low levels in 2009.

The question of when meaningful improvement will arrive in Montana's real estate and construction markets remains unresolved. And although there is clear evidence that Montana's economy has swung to growth, there is no doubt that growth would be stronger if housing markets were in better shape.❑

Patrick M. Barkey is director of The University of Montana Bureau of Business and Economic Research.

Vacation Homes in Montana

Several Regions Show Explosive Growth in the First Half of the Decade

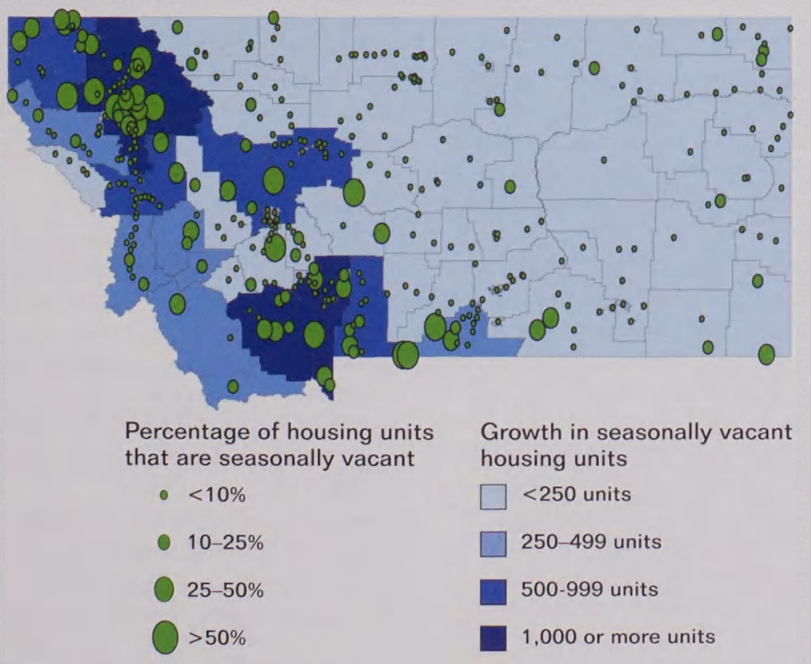
by James T. Sylvester

Several regions in Montana appeared to experience explosive growth in seasonal housing between 2000 and 2006. Data regarding vacant housing units from the 2010 Census confirm what windshield surveys of these popular tourist destinations indicate. Vacation homes are a major part of several Montana communities, and the numbers have increased; however, most of the growth occurred before the recession. Sales of vacation homes have been nearly nonexistent the last couple of years.

Figure 1 shows the growth in seasonal homes was very regional. Nearly all the growth was in the western and southwestern parts of Montana; very little growth occurred elsewhere. The darkest-shaded counties (Flathead, Gallatin, Lake, and Madison counties) experienced growth in seasonal housing of more than 1,000 units. The medium-shaded counties (Cascade, Lewis and Clark, Lincoln, Missoula, and Park counties) grew between 500 and 999 seasonal units. The next gradation counties experienced growth of 250 to 499 seasonal units. Theses counties were all in the western part of the state. Nearly all of the eastern and northern parts of Montana saw no or little growth in seasonal housing.

The green circles in Figure 1 show the percentage of a community's housing units that are seasonally vacant. The largest circles represent communities with more than half the housing units classified as seasonally vacant. The next size circles are communities with between 25 percent and 50 percent of their housing units seasonally vacant. The second smallest circles represent communities with 10 percent to 25 percent of the housing units being seasonally vacant. The smallest circles represent the vast majority of Montana communities with less than 10 percent of their housing units being seasonally vacant.

Figure 1
Distribution of Seasonal Housing, Montana Counties and Communities, 2010



Source: 2010 Census.

Growth Occurs Mostly Near Lakes and Ski Resorts

Census data from 2010 show seasonal housing grew about 14,000 units between 2000 and 2010, an increase of 59 percent. Five counties – Flathead, Madison, Lake, Gallatin, and Lincoln – accounted for more than half of the increase.

Flathead County's seasonal housing increased 83 percent, from 3,570 units in 2000 to 6,542 in 2010, an increase of 2,972 vacation homes. Most of this growth occurred along the shores of Whitefish and Flathead lakes. The 6,542 seasonal housing units account for nearly 14 percent of all housing in Flathead County. Several Flathead communities have more vacation homes than regular homes. These communities include Little Bitterroot Lake (62 percent), West Glacier (58 percent), Rollins (56 percent) and Dayton (53 percent). Areas outside the designated places have large proportions of homes defined as seasonal.

Madison County vacation homes grew by 1,755 units, from 1,144 in 2000 to 2,899 in 2010, a whopping 153 percent increase. Madison County is the home of much of the developed area around Big Sky and Moonlight Basin ski resorts, where about 65 percent of housing is for seasonal use. More than 40 percent of the housing in Madison County is vacant for seasonal use.

Lake County seasonally vacant units increased by 1,273, a 47 percent increase over 2000. Nearly all the growth was near Flathead Lake. Almost a quarter of all housing in Lake County is for seasonal use. Five Lake County communities have much higher proportions of seasonal housing, including Kings Point (81 percent), Lake Mary Ronan (78 percent), Lindisfarne (75 percent), Finley Point (67 percent), and Swan Lake (63 percent).

Gallatin County grew by 1,071 seasonal units, a 61 percent increase. Most of this growth occurred in the Gallatin Canyon near Big Sky. Only 6.6 percent of housing in Gallatin County is for seasonal use.

Seasonally vacant units more than doubled in Lincoln County, from 821 in 2000 to 1,719 in 2010. Seasonal housing in Lincoln County is scattered among the many lakes and streams in the county. Sixty percent of the housing in Happys Inn and just over half of the Yaak Valley's housing is seasonal.

Other areas in Montana also experienced growth in seasonally vacant housing but at levels far below the areas just discussed. Seasonal vacant housing makes up large proportions of housing in Granite (42 percent), Carbon (21 percent) and Meagher (33 percent) counties. All three counties are areas where outdoor recreation is a substantial part of the lifestyle.

The Census Bureau collects data on housing units during each decennial census. Data are collected on renter versus owner-occupied housing. Vacant units are counted as to the type of vacancy, with seasonally vacant units (owner-occupied vacation homes) attracting the most attention from policymakers. The Census Bureau defines seasonal vacant units used or intended for use only in certain seasons or for weekends or other occasional use throughout the year. Seasonal units include those used for summer or winter sports or recreation, such as beach cottages and hunting cabins. Seasonal units also may include quarters for such workers as herders and loggers. Interval ownership units, sometimes called shared-ownership or time-sharing condominiums, also are included here.

Summary

The rapid growth in recreational homes experienced between 2000 and 2010 will probably not be repeated in the near future. There exists a large inventory of second homes for sale in the areas that experienced the growth; large numbers of new homes will not be built until this inventory is exhausted. Once these existing recreational homes are sold, there may well be further increases as the areas where there are a large number of recreational homes still remain a desirable place to vacation.❑

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